```
FILE 'REGISTRY' ENTERED AT 09:39:56 ON 27 JAN 2006

=> S BISPHOSPHATE NUCLEOTIDASE/CN
L1            0 BISPHOSPHATE NUCLEOTIDASE/CN

=> S 3', 5'-BISPHOSPHATE NUCLEOTIDASE/CN
L2            0 3', 5'-BISPHOSPHATE NUCLEOTIDASE/CN

=> S BISPHOSPHATE NUCLEOTIDASE
          2672 BISPHOSPHATE
             1 BISPHOSPHATES
          2672 BISPHOSPHATE
                 (BISPHOSPHATE OR BISPHOSPHATES)
           404 NUCLEOTIDASE
L3          37 BISPHOSPHATE NUCLEOTIDASE
                 (BISPHOSPHATE(W)NUCLEOTIDASE)

=> D 1-37

L3   ANSWER 1 OF 37  REGISTRY  COPYRIGHT 2006 ACS on STN
RN   870943-73-0  REGISTRY
ED   Entered STN:  30 Dec 2005
CN   3'(2'),5'-Bisphosphate nucleotidase (Salinibacter ruber strain DSM
     13855) (9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   GenBank ABC44712
CN   GenBank ABC44712 (Translated from: GenBank CP000159)
FS   PROTEIN SEQUENCE
MF   Unspecified
CI   MAN
SR   GenBank
LC   STN Files:   CA, CAPLUS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
               1 REFERENCES IN FILE CA (1907 TO DATE)
               1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3   ANSWER 2 OF 37  REGISTRY  COPYRIGHT 2006 ACS on STN
RN   865130-23-0  REGISTRY
ED   Entered STN:  13 Oct 2005
CN   3'(2'),5'-Bisphosphate nucleotidase (Chlamydia trachomatis strain
     A/HAR-13 gene cysQ) (9CI)  (CA INDEX NAME)
OTHER NAMES:
CN   GenBank AAX51054
CN   GenBank AAX51054 (Translated from: GenBank CP000051)
FS   PROTEIN SEQUENCE
MF   Unspecified
CI   MAN
SR   GenBank
LC   STN Files:   CA, CAPLUS, TOXCENTER

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
               1 REFERENCES IN FILE CA (1907 TO DATE)
               1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3   ANSWER 3 OF 37  REGISTRY  COPYRIGHT 2006 ACS on STN
RN   863816-66-4  REGISTRY
ED   Entered STN:  23 Sep 2005
CN   3'(2'),5'-Bisphosphate nucleotidase (Pseudomonas syringae
     phaseolicola strain 1448A gene cysQ) (9CI)  (CA INDEX NAME)
OTHER NAMES:
```

CN GenBank AAZ37032
CN GenBank AAZ37032 (Translated from: GenBank CP000058)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 4 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 861470-28-2 REGISTRY
ED Entered STN: 23 Aug 2005
CN 3'(2'),5'-Bisphosphate nucleotidase (Rickettsia felis strain URRWXCal2 gene cysQ) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank AAY61333
CN GenBank AAY61333 (Translated from: GenBank CP000053)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS, TOXCENTER

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 5 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 860948-96-5 REGISTRY
ED Entered STN: 18 Aug 2005
CN 3'(2'),5'-Bisphosphate nucleotidase (Colwellia psychrerythraea strain 34H gene cysQ) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank AAZ28382
CN GenBank AAZ28382 (Translated from: GenBank CP000083)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS, TOXCENTER

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 6 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 860882-40-2 REGISTRY
ED Entered STN: 18 Aug 2005
CN 3'(2'),5'-Bisphosphate nucleotidase (Pseudomonas fluorescens strain Pf-5 gene cysQ) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank AAY95709
CN GenBank AAY95709 (Translated from: GenBank CP000076)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR GenBank

LC STN Files: CA, CAPLUS, TOXCENTER

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
              1 REFERENCES IN FILE CA (1907 TO DATE)
              1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 7 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 860876-82-0 REGISTRY
ED Entered STN: 18 Aug 2005
CN 3(2),5 -Bisphosphate nucleotidase, bacterial (Pseudomonas syringae
    syringae strain B728a) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank AAY39967
CN GenBank AAY39967 (Translated from: GenBank CP000075)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS, TOXCENTER

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
              1 REFERENCES IN FILE CA (1907 TO DATE)
              1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 8 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 849273-54-7 REGISTRY
ED Entered STN: 26 Apr 2005
CN CysQ, 3(2),5-bisphosphate nucleotidase (Brucella melitensis biovar
    abortus strain 9-941 gene cysQ) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank AAX73601
CN GenBank AAX73601 (Translated from: GenBank AE017223)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS

RELATED SEQUENCES AVAILABLE WITH SEQLINK

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
              1 REFERENCES IN FILE CA (1907 TO DATE)
              1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 9 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 831045-36-4 REGISTRY
ED Entered STN: 14 Feb 2005
CN 3'(2'),5'-Bisphosphate nucleotidase (Vibrio fischeri strain ES114)
    (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank AAW86957
CN GenBank AAW86957 (Translated from: GenBank CP000020)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS, TOXCENTER

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***

1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 10 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 811231-31-9 REGISTRY
ED Entered STN: 10 Jan 2005
CN 3'(2'),5'-Bisphosphate nucleotidase (Cryptococcus neoformans neoformans strain JEC21) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank AAW41336
CN GenBank AAW41336 (Translated from: GenBank AE017341)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 11 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 800259-50-1 REGISTRY
ED Entered STN: 20 Dec 2004
CN 3'(2'),5'-Bisphosphate nucleotidase (Silicibacter pomeroyi strain DSS-3 gene cysQ) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank AAV93370
CN GenBank AAV93370 (Translated from: GenBank CP000031)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 12 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 787242-86-8 REGISTRY
ED Entered STN: 23 Nov 2004
CN DNA (human clone DE10316701-SEQID-379 gene BPNT1 (2')3',5'-bisphosphate nucleotidase cDNA plus flanks) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 41: PN: DE10316701 PAGE: 1148 claimed DNA
FS NUCLEIC ACID SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS, TOXCENTER

RELATED SEQUENCES AVAILABLE WITH SEQLINK

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 13 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 757850-60-5 REGISTRY

ED Entered STN: 06 Oct 2004
CN 3'(2'),5'-Bisphosphate nucleotidase (Methylococcus capsulatus strain
    Bath gene cysQ) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank AAU90880
CN GenBank AAU90880 (Translated from: GenBank AE017282)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
              1 REFERENCES IN FILE CA (1907 TO DATE)
              1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 14 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 743939-88-0 REGISTRY
ED Entered STN: 13 Sep 2004
CN 3'(2'),5'-Bisphosphate nucleotidase-like protein (Arabidopsis
    thaliana clone RAFL21-73-J08 gene At4g05090) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank BAD43064
CN GenBank BAD43064 (Translated from: GenBank AK175301)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS

RELATED SEQUENCES AVAILABLE WITH SEQLINK

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
              1 REFERENCES IN FILE CA (1907 TO DATE)
              1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 15 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 731687-25-5 REGISTRY
ED Entered STN: 23 Aug 2004
CN 3'(2'),5'-Bisphosphate nucleotidase CysQ (Rickettsia typhi strain
    Wilmington gene cysQ) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank AAU03768
CN GenBank AAU03768 (Translated from: GenBank AE017197)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
              1 REFERENCES IN FILE CA (1907 TO DATE)
              1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 16 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 703373-09-5 REGISTRY
ED Entered STN: 02 Jul 2004
CN PAPS (adenosine 3'-phosphate 5'-phosphosulfate) 3'(2'),5'-
    bisphosphate nucleotidase, converts PAPS to APS (Acinetobacter strain ADP1
    gene cysQ) (9CI) (CA INDEX NAME)

OTHER NAMES:
CN GenBank CAG68253
CN GenBank CAG68253 (Translated from: GenBank CR543861)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
              1 REFERENCES IN FILE CA (1907 TO DATE)
              1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 17 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 537096-53-0 REGISTRY
ED Entered STN: 25 Jun 2003
CN Related to 3'(2'), 5'-BISPHOSPHATE NUCLEOTIDASE (Neurospora crassa
    gene B15E24.060) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank CAD70340
CN GenBank CAD70340 (Translated from: GenBank BX284748)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
              1 REFERENCES IN FILE CA (1907 TO DATE)
              1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 18 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 522018-74-2 REGISTRY
ED Entered STN: 29 May 2003
CN 3'(2'),5'-Bisphosphate nucleotidase (Pseudomonas putida strain KT2440
    gene cysQ) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank AAN65892
CN GenBank AAN65892 (Translated from: GenBank AE016775)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS, TOXCENTER

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
              1 REFERENCES IN FILE CA (1907 TO DATE)
              1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 19 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 508643-10-5 REGISTRY
ED Entered STN: 01 May 2003
CN 3'(2'),5'-Bisphosphate nucleotidase (Coxiella burnetii strain RSA 493
    gene cysQ-2) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank AAO90245
CN GenBank AAO90245 (Translated from: GenBank AE016962)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN

SR GenBank
LC STN Files: CA, CAPLUS, TOXCENTER

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 20 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 508642-08-8 REGISTRY
ED Entered STN: 01 May 2003
CN 3'(2'),5'-Bisphosphate nucleotidase (Coxiella burnetii strain RSA 493 gene cysQ-1) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank AAO90143
CN GenBank AAO90143 (Translated from: GenBank AE016961)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS, TOXCENTER

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 21 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 508586-51-4 REGISTRY
ED Entered STN: 01 May 2003
CN 3'(2'),5'-Bisphosphate nucleotidase (Pseudomonas syringae tomato strain DC3000 gene cysQ) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank AAO58823
CN GenBank AAO58823 (Translated from: GenBank AE016875)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS, TOXCENTER

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 22 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 480103-14-8 REGISTRY
ED Entered STN: 22 Jan 2003
CN Similar to 3'(2'), 5'-bisphosphate nucleotidase 1 (human clone MGC:22359 IMAGE:4338207) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN BPNT1 protein (human clone MGC:22359 IMAGE:4338207)
CN GenBank AAH17801
CN GenBank AAH17801 (Translated from: GenBank BC017801)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***

2 REFERENCES IN FILE CA (1907 TO DATE)
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 23 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 464340-91-8 REGISTRY
ED Entered STN: 23 Oct 2002
CN 3'(2'),5'-Bisphosphate nucleotidase (Brucella melitensis biovar Suis strain 1330 gene cysQ) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank AAN29148
CN GenBank AAN29148 (Translated from: GenBank AE014332)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS

RELATED SEQUENCES AVAILABLE WITH SEQLINK

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 24 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 439555-30-3 REGISTRY
ED Entered STN: 18 Jul 2002
CN Protein (uncultured proteobacterium clone 60D04 gene cysQ) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 3'(2'),5'-Bisphosphate nucleotidase homolog (uncultured proteobacterium clone 60D04 gene cysQ)
CN GenBank AAM48702
CN GenBank AAM48702 (Translated from: GenBank AE008921)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 25 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 437159-60-9 REGISTRY
ED Entered STN: 03 Jul 2002
CN 3(2),5-Bisphosphate nucleotidase (Arabidopsis thaliana clone RAFL09-59-A20 (R19237) gene At5g64000) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank AAL49879
CN GenBank AAL49879 (Translated from: GenBank AY070383)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS

RELATED SEQUENCES AVAILABLE WITH SEQLINK

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***

1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 26 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 430476-72-5 REGISTRY
ED Entered STN: 14 Jun 2002
CN Nucleotidase, phosphoadenylate 3'- (cotton clone F1 C-terminal fragment) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 3'(2'),5'-Bisphosphate nucleotidase (Gossypium hirsutum strain CRI12 fiber cell clone F1 C-terminal fragment)
CN GenBank CAC84117
CN GenBank CAC84117 (Translated from: GenBank AJ310755)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 27 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 416333-30-7 REGISTRY
ED Entered STN: 15 May 2002
CN 3'(2'),5'-Bisphosphate nucleotidase protein-like protein (Arabidopsis thaliana strain Columbia clone F24B18) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank BAA97512
CN GenBank BAA97512 (Translated from: GenBank AB026634)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS, TOXCENTER

RELATED SEQUENCES AVAILABLE WITH SEQLINK

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 28 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 375317-51-4 REGISTRY
ED Entered STN: 13 Dec 2001
CN DNA (human clone MGC:22359 IMAGE:4338207 Similar to 3'(2'), 5'-bisphosphate nucleotidase 1 cDNA plus flanks) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN DNA (human clone MGC:22359 IMAGE:4338207 BPNT1 protein cDNA)
CN GenBank BC017801
FS NUCLEIC ACID SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS, GENBANK

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
2 REFERENCES IN FILE CA (1907 TO DATE)

2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 29 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 371899-53-5 REGISTRY
ED Entered STN: 26 Nov 2001
CN DNA (cotton clone F1 phosphoadenylate 3'-nucleotidase C-terminal fragment-specifying cDNA plus flanks) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN DNA (Gossypium hirsutum strain CRI12 fiber cell clone F1 3'(2'),5'-bisphosphate nucleotidase C-terminal fragment-specifying cDNA plus flanks)
CN GenBank AJ310755
FS NUCLEIC ACID SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS, GENBANK

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 30 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 261934-69-4 REGISTRY
ED Entered STN: 16 Apr 2000
CN 3'(2'),5'-Bisphosphate nucleotidase (Chlamydia muridarum strain Nigg gene TC0155) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank AAF39031
CN GenBank AAF39031 (Translated from: GenBank AE002282)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS, TOXCENTER

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 31 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 231284-72-3 REGISTRY
ED Entered STN: 07 Aug 1999
CN Nucleotidase, phosphoadenylate 3'- (Arabidopsis thaliana gene SAL2) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 3'(2'),5'-Bisphosphate nucleotidase (Arabidopsis thaliana gene SAL2)
CN GenBank CAB05889
CN GenBank CAB05889 (Translated from: GenBank Z83312)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS, TOXCENTER

RELATED SEQUENCES AVAILABLE WITH SEQLINK

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 32 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 225617-61-8 REGISTRY
ED Entered STN: 25 Jun 1999
CN DNA (Arabidopsis thaliana strain Columbia clone F24B18
3'(2'),5'-bisphosphate nucleotidase protein-like protein gene plus
1,4-benzoquinone reductase-like; Trp repressor binding protein-like gene
plus auxin-responsive-like protein gene) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank AB026634
CN GenBank BA000015 (Secondary GenBank Accession Number)
FS NUCLEIC ACID SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS, GENBANK, TOXCENTER

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 33 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 223715-98-8 REGISTRY
ED Entered STN: 28 May 1999
CN Protein (Chlamydia pneumoniae gene cysQ) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 3'(2'),5'-Bisphosphate nucleotidase (Chlamydophila pneumoniae AR39
strain AR39 gene CP0946)
CN Protein (Chlamydia pneumoniae strain ATCC_1260-VR open reading frame 992)
CN Sulfite synthesis/biphosphate phosphatase (Chlamydia pneumoniae gene cysQ)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS, TOXCENTER, USPATFULL

RELATED SEQUENCES AVAILABLE WITH SEQLINK

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
3 REFERENCES IN FILE CA (1907 TO DATE)
3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 34 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 202255-84-3 REGISTRY
ED Entered STN: 05 Mar 1998
CN DNA (Arabidopsis thaliana gene SAL2 phosphoadenylate 3'- nucleotidase cDNA
plus flanks) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN DNA (Arabidopsis thaliana gene SAL2 3'(2'),5'-bisphosphate
nucleotidase cDNA plus flanks)
CN GenBank Z83312
FS NUCLEIC ACID SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: CA, CAPLUS, GENBANK, TOXCENTER

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1907 TO DATE)

1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 35 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 175335-30-5 REGISTRY
ED Entered STN: 18 Apr 1996
CN Nucleotidase, phosphoadenylate 3'-(Arabidopsis thaliana gene SAL1) (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 3'(2'),5'-Bisphosphate nucleotidase (Arabidopsis thaliana gene SAL1)
CN GenBank AAC49263
CN GenBank AAC49263 (Translated from: GenBank U40433)
CN Nucleotidase, phosphoadenylate 3'- (Arabidopsis thaliana gene SAL1)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS, TOXCENTER

RELATED SEQUENCES AVAILABLE WITH SEQLINK

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
2 REFERENCES IN FILE CA (1907 TO DATE)
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 36 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 171314-85-5 REGISTRY
ED Entered STN: 13 Dec 1995
CN DNA (Arabidopsis thaliana gene SAL1 phosphoadenylate 3'-nucleotidase cDNA plus flanks) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Deoxyribonucleic acid (Arabidopsis thaliana gene SAL1 phosphoadenylate 3'-nucleotidase messenger RNA-complementary plus 5'- and 3'-flanking region fragment)
OTHER NAMES:
CN DNA (Arabidopsis thaliana gene SAL1 3'(2'),5'-bisphosphate nucleotidase cDNA plus flanks)
CN DNA (Arabidopsis thaliana gene SAL1 phosphoadenylate 3'- nucleotidase cDNA plus flanks)
CN GenBank U40433
FS NUCLEIC ACID SEQUENCE
MF Unspecified
CI MAN
SR GenBank
LC STN Files: AGRICOLA, BIOSIS, CA, CAPLUS, GENBANK, TOXCENTER

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
2 REFERENCES IN FILE CA (1907 TO DATE)
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 37 OF 37 REGISTRY COPYRIGHT 2006 ACS on STN
RN 9025-83-6 REGISTRY
ED Entered STN: 16 Nov 1984
CN Nucleotidase, phosphoadenylate 3'- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 2'(2'),5'-Diphosphonucleoside 3'(2')-phosphohydrolase
CN 3'(2'),5'-Bisphosphate nucleotidase
CN 3'(2')-Phosphoadenosine-5'-phosphate phosphatase
CN 3'-Phosphoadenosine 5'-phosphosulfate phosphatase
CN 3'-Phosphoadenosine-5'-phosphatase
CN 3'-Phosphoadenosine-5'-phosphate phosphatase

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CN   3'-Phosphoadenylylsulfate 3'-phosphatase
CN   Bisphosphate 3'-nucleotidase
CN   E.C. 3.1.3.30
CN   E.C. 3.1.3.7
CN   Nucleoside 3'(2'),5'-bisphosphate-3'-(2')-phosphatase
CN   PAPS phosphatase
CN   Phosphoadenylate 3'-nucleotidase
CN   Phosphoadenylylsulfate phosphatase
DR   37288-14-5
MF   Unspecified
CI   MAN
LC   STN Files:   AGRICOLA, BIOSIS, CA, CAPLUS, TOXCENTER, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
              32 REFERENCES IN FILE CA (1907 TO DATE)
               2 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
              32 REFERENCES IN FILE CAPLUS (1907 TO DATE)


=> S ADENOSINE 3', 5'-BISPHOSPHATE/CN
L4            0 ADENOSINE 3', 5'-BISPHOSPHATE/CN

=> S ADENOSINE 3', 5'-BISPHOSPHATE
         68699 ADENOSINE
      15655365 3
      10771316 '5'
          2672 BISPHOSPHATE
             1 BISPHOSPHATES
          2672 BISPHOSPHATE
                 (BISPHOSPHATE OR BISPHOSPHATES)
L5            0 ADENOSINE 3', 5'-BISPHOSPHATE
                 (ADENOSINE(W)3(W)'5'(W)BISPHOSPHATE)

FILE 'CAPLUS' ENTERED AT 09:44:22 ON 27 JAN 2006

=> S BISPHOSPHATE NUCLEOTIDASE
         14488 BISPHOSPHATE
           244 BISPHOSPHATES
         14595 BISPHOSPHATE
                 (BISPHOSPHATE OR BISPHOSPHATES)
          7451 NUCLEOTIDASE
           915 NUCLEOTIDASES
          7680 NUCLEOTIDASE
                 (NUCLEOTIDASE OR NUCLEOTIDASES)
L6           25 BISPHOSPHATE NUCLEOTIDASE
                 (BISPHOSPHATE(W)NUCLEOTIDASE)

=> S BISPHOSPHATE(4W)NUCLEOTIDASE
         14488 BISPHOSPHATE
           244 BISPHOSPHATES
         14595 BISPHOSPHATE
                 (BISPHOSPHATE OR BISPHOSPHATES)
          7451 NUCLEOTIDASE
           915 NUCLEOTIDASES
          7680 NUCLEOTIDASE
                 (NUCLEOTIDASE OR NUCLEOTIDASES)
L7           28 BISPHOSPHATE(4W)NUCLEOTIDASE

=> S L3;S L3 OR L7
L8           61 L3


             61 L3
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L9 70 L3 OR L7

=> S SODIUM;S LITHIUM
1015857 SODIUM
34 SODIUMS
L10 1015866 SODIUM
(SODIUM OR SODIUMS)

301217 LITHIUM
362 LITHIUMS
L11 301343 LITHIUM
(LITHIUM OR LITHIUMS)

=> S (L10,L11) AND L9
L12 29 ((L10 OR L11)) AND L9

=> D 1-29 CBIB ABS

L12 ANSWER 1 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
2005:1055777 Automated enzymatic assay for measurement of lithium ions in human serum. Dou, Chao; Aleshin, Olga; Datta, Abhijit; Yuan, Chong (Diazyme Laboratories Division, General Atomics, San Diego, CA, 92121, USA). Clinical Chemistry (Washington, DC, United States), 51(10), 1989-1991 (English) 2005. CODEN: CLCHAU. ISSN: 0009-9147. Publisher: American Association for Clinical Chemistry.
AB An enzymic coupling assay for quant. measurement of lithium in nonhemolyzed human sera has been developed and adapted to most automated clin. chemical analyzers. In this assay, lithium is determined through a kinetic coupling system involving a lithium-sensitive enzyme, 3',5'-bisphosphate nucleotidase, from yeast. The assay is formulated into a lyophilized 2-reagent system with MES buffer (pH 6.0). Applications have been developed for testing human serum specimens on the Cobas Mira, Synchron CX-7, and Hitachi 717. The within-run CV was <4.7%, and the total CV was <6.9%. The study testing human sera with lithium concns. of 0-3 mmol/L demonstrated good correlation with both a com. available ion-selective electrode method and a colorimetric method on various automated analyzers. The assay was linear up to 3.0 mmol/L.

L12 ANSWER 2 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
2005:473532 Molecular cloning and biochemical characterization of a 3'(2'),5'-bisphosphate nucleotidase from Debaryomyces hansenii. Aggarwal, Monika; Bansal, Parmil K.; Mondal, Alok K. (Institute of Microbial Technology, Chandigarh, 160 036, India). Yeast, 22(6), 457-470 (English) 2005. CODEN: YESTE3. ISSN: 0749-503X. Publisher: John Wiley & Sons Ltd..
AB The enzyme 3'(2'),5'-bisphosphate nucleotidase catalyzes a reaction that converts 3'-phosphoadenosine-5'-phosphate (PAP) to adenosine-5'-phosphate (AMP) and inorg. phosphate (Pi). The enzyme from Saccharomyces cerevisiae is highly sensitive to sodium and lithium and is thus considered to be the in vivo target of salt toxicity in yeast. In S. cerevisiae, the HAL2 gene encodes this enzyme. We have cloned a homologous gene, DHAL2, from the halotolerant yeast Debaryomyces hansenii. DNA sequencing of this clone revealed a 1260 bp open reading frame (ORF) that putatively encoded a protein of 420 amino acid residues. S. cerevisiae transformed with DHAL2 gene displayed higher halotolerance. Biochem. studies showed that recombinant Dhal2p could efficiently utilize PAP (Km 17 μM) and PAPS (Km 48 μM) as substrate. Moreover, we present evidence that, in comparison to other homologues from yeast, Dhal2p displays significantly higher resistance towards lithium and sodium ions. The nucleotide sequence of DHAL2 gene has been submitted to Genbank (Accession Number AY340817).

L12 ANSWER 3 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN

2005:283276 Document No. 142:353392 Determination of serum levels of sodium and lithium ions using ion-sensitive 3'(2'),5'-bisphosphate nucleotidase chimeric protein. Yuan, Chong-Sheng (General Atomics, USA). PCT Int. Appl. WO 2005027725 A2 20050331, 46 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2004-US30522 20040917. PRIORITY: US 2003-2003/665883 20030919.

AB Serum electrolytes play a critical role in regulating normal physiol. functioning within and between cells. The testing of serum electrolytes is one of the most common anal. tests performed within hospitals. The invention relates generally to the field of sodium and lithium ion detection. In particular, the invention provides chimeric proteins comprising 3'(2'),5'-bisphosphate nucleotidase fused with bacterial leader sequence for detecting sodium and lithium ions in a blood sample. The method comprises: (a) contacting the sample with a sodium-sensitive or lithium ions 3'(2'),5'-bisphosphate nucleotidase , wherein the nucleotidase consumes adenosine 3',5'-bisphosphate (PAP) and forms AMP and Pi; and (b) assessing the consumption of PAP or the formation of AMP and Pi to determine the presence or amount of sodium ions or lithium ions in the sample.

L12 ANSWER 4 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN

2005:140690 Document No. 142:233346 Novel targets for lithium therapy. York, John D.; Spiegelberg, Bryan David (Duke University, USA). U.S. Pat. Appl. Publ. US 2005037450 A1 20050217, 69 pp., Cont.-in-part of U.S. Provisional Serl No. 401,480. (English). CODEN: USXXCO. APPLICATION: US 2003-635265 20030806. PRIORITY: US 2002-2002/PV401480 20020806.

AB Compds. for use as lithium-like therapeutic agents and methods and reagents for identifying same as well as compds. for treating lithium-induced toxicity and methods and reagents for identifying same. The compds. modulate the activity of enzymes within pathways upon which lithium has been discovered to act. Also disclosed herein are transgenic animals that serve as models of lithium-induced toxicity and methods of using the transgenic animals for identifying compds. that ameliorate lithium toxicity. Furthermore, disclosed herein are methods of modeling target sites for lithium .

L12 ANSWER 5 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN

2005:134594 Document No. 142:254446 Alteration of Lithium Pharmacology through Manipulation of Phosphoadenosine Phosphate Metabolism. Spiegelberg, Bryan D.; dela Cruz, June; Law, Tzuo-Hann; York, John D. (Departments of Pharmacology & Cancer Biology and Biochemistry, Howard Hughes Medical Institute, Duke University Medical Center, Durham, NC, 27710, USA). Journal of Biological Chemistry, 280(7), 5400-5405 (English) 2005. CODEN: JBCHA3. ISSN: 0021-9258. Publisher: American Society for Biochemistry and Molecular Biology.

AB Bisphosphate 3'-nucleotidase (BPNT1 in mammals and Met22/Hal2 in yeast) is one of five members of a family of signaling phosphatases united through a common tertiary structure and inhibition by subtherapeutic doses of the antibipolar drug lithium. Here we report a role for 3'-nucleotidase and its substrate, 3'-phosphoadenosine 5'-phosphate (PAP), in mediating the cellular effects of lithium . Lithium-induced inhibition of growth in yeast cells may be overcome by dose-dependent heterologous expression of human BPNT1. Disruption of the yeast 3'-nucleotidase gene or treatment of cells with lithium results in a >80-fold accumulation of PAP and leads to potent growth inhibition. These data indicate that the accumulation of a 3'-nucleotidase substrate, such as PAP, mediates the

toxicity of lithium. To further probe this model we examined the growth inhibitory effects of lithium under conditions in which PAP biosynthetic machinery was concomitantly down-regulated. Disruption of met3 or met14 genes (ATP sulfurylase or phosphosulfate kinase), transcriptional down-regulation of MET3 through methionine addition, or administration of chlorate, a widely used cell-permeable sulfurylase inhibitor, function to reduce lithium-induced intracellular PAP accumulation and lithium toxicity; all of these effects were reversed by heterologous expression of human sulfurylase and kinase. Collectively, our data support a role for 3'-nucleotidase activity and PAP metabolism in aspects of lithium's mechanism of action and provide a platform for development of novel pharmacol. modulators aimed at improving therapies for the treatment of bipolar disorder.

L12 ANSWER 6 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
2004:947130 Document No. 142:328538 Molecular effects of lithium.
Quiroz, Jorge A.; Gould, Todd D.; Manji, Husseini K. (Laboratory of Molecular Pathophysiology, Mood and Anxiety Disorders Program, National Institute of Mental Health, NIH, Bethesda, MD, 20892, USA). Molecular Interventions, 4(5), 259-272 (English) 2004. CODEN: MIONAR. ISSN: 1534-0384. Publisher: American Society for Pharmacology and Experimental Therapeutics.

AB A review on recent insights into the actions of lithium, including its direct inhibitory actions on inositol monophosphatase, inositol polyphosphate 1-phosphatase, glycogen synthase kinase-3, fructose 1,6-bisphosphatase, bisphosphate nucleotidase, and phosphoglucomutase enzymes. Lithium's intracellular downstream targets including adenylate cyclase, the phosphoinositol cascade (and its effect on protein kinase C), arachidonic acid metabolism, and effects on neurotrophic cascades are also discussed. Many of the new insights into lithium's actions may lead to the strategic development of improved therapeutics for the treatment of bipolar disorder.

L12 ANSWER 7 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
2004:925904 Document No. 141:393465 Genes showing altered expression in lung cancer and their products and their use in diagnosis and treatment.
Mennerich, Detlev; Bruemmendorf, Thomas; Heiden Castanos-Velez, Esmeralda; Hermann, Klaus; Kinnemann, Henrik; Li, Xinzhong; Roepcke, Stefan; Staub, Eike; Hinzmann, Bernd; Rosenthal, Andre; Pilarsky, Christian (Germany). Ger. Offen. DE 10316701 A1 20041104, 1381 pp. (German). CODEN: GWXXBX. APPLICATION: DE 2003-10316701 20030409.

AB Genes showing altered levels of expression in human bronchial carcinoma are identified for use in the diagnosis or treatment of the disease. Expression of the gene or presence of the gene product may be used as a diagnostic marker and either the gene or its product may be a target for antineoplastic drugs. Microarray anal. identified 489 genes showing altered patterns of expression in patients with lung adenocarcinoma or squamous cell carcinoma.

L12 ANSWER 8 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
2004:594329 Document No. 142:211009 Emerging experimental therapeutics for bipolar disorder: insights from the molecular and cellular actions of current mood stabilizers. Gould, T. D.; Quiroz, J. A.; Singh, J.; Zarate, C. A., Jr.; Manji, H. K. (Laboratory of Molecular Pathophysiology, National Institute of Mental Health, Bethesda, MD, 20892, USA). Molecular Psychiatry, 9(8), 734-755 (English) 2004. CODEN: MOPSFQ. ISSN: 1359-4184. Publisher: Nature Publishing Group.

AB A review. Bipolar disorder afflicts approx. 1-3% of both men and women, and is coincident with major economic, societal, medical, and interpersonal consequences. Current mediations used for its treatment are associated with variable rates of efficacy and often intolerable side effects. While preclin. and clin. knowledge in the neurosciences has expanded at a tremendous rate, recent years have seen no major breakthroughs in the development of novel types

of treatment for bipolar disorder. We review here approaches to develop novel treatments specifically for bipolar disorder. Deliberate (ie not by serendipity) treatments may come from one of two general mechanisms: (1) Understanding the mechanism of action of current medications and thereafter designing novel drugs that mimics these mechanism(s); (2) Basing medication development upon the hypothetical or proven underlying pathophysiol. of bipolar disorder. In this review, we focus upon the first approach. Mol. and cellular targets of current mood stabilizers include lithium inhibitable enzymes where lithium competes for a magnesium binding site (inositol monophosphatase, inositol polyphosphate 1-phosphatase, glycogen synthase kinase-3 (GSK-3), fructose 1,6-bisphosphatase, bisphosphate nucleotidase, phosphoglucomutase), valproate inhibitable enzymes (succinate semialdehyde dehydrogenase, succinate semialdehyde reductase, histone deacetylase), targets of carbamazepine (sodium channels, adenosine receptors, adenylate cyclase), and signaling pathways regulated by multiple drugs of different classes (phosphoinositol/protein kinase C, cAMP, arachidonic acid, neurotrophic pathways). While the task of developing novel medications for bipolar disorder is truly daunting, we are hopeful that understanding the mechanism of action of current mood stabilizers will ultimately lead clin. trials with more specific medications and thus better treatments those who suffer from this devastating illness.

L12 ANSWER 9 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
2004:136306 Document No. 141:236232 Chronic lithium treatment affects rat brain and serum dehydroepiandrosterone (DHEA) and DHEA-sulphate (DHEA-S) levels. Maayan, Rachel; Shaltiel, Galit; Poyurovsky, Michael; Ramadan, Edward; Morad, Oren; Nechmad, Allon; Weizman, Abraham; Agam, Galila (Petah Tikva and Sackler Faculty of Medicine, Beilinson Campus, Felsentein Medical Research Center, Laboratory of Biological Psychiatry, Tel Aviv University, Tel Aviv-Jaffa, Israel). International Journal of Neuropsychopharmacology, 7(1), 71-75 (English) 2004. CODEN: IJNUFB. ISSN: 1461-1457. Publisher: Cambridge University Press.

AB Lithium (Li) is an established effective treatment for bipolar disorder. However, the mol. mechanism of its action is still unknown. Dehydroepiandrosterone (DHEA) and its sulfate ester (DHEA-S) are adrenal hormones also synthesized de novo in the brain as neurosteroids. Recent studies have suggested that DHEA has mood-elevating properties and may demonstrate antidepressant effects. 3'(2')-Phosphoadenosine 5'-phosphate (PAP) phosphatase is a novel Li-inhibitable enzyme involved in sulfation processes. In the present study we examined the impact of 10 d Li treatment on serum and brain DHEA and DHEA-S levels in rats. Our results show that Li administration lowered frontal cortex and hippocampus DHEA and DHEA-S levels, in line with our hypothesis assuming that Li's inhibition of PAP phosphatase leads to elevated PAP levels resulting in inhibition of sulfation and reduction in brain DHEA-S levels. Future studies should address the involvement of neurosteroids in the mechanism of Li's mood stabilization.

L12 ANSWER 10 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
2004:120864 Document No. 140:175100 Biological pathways affected in lithium therapy and the development of novel drugs mimicking lithium for therapeutic use. York, John D.; Spiegelberg, Bryan David (Duke University, USA). PCT Int. Appl. WO 2004013152 A2 20040212, 141 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-US24675 20030806. PRIORITY: US 2002-2002/PV401480 20020806.

AB A bisphosphate 3'-nucleotidase that is inhibited by lithium and that may be useful as a target for more specific drugs to replace lithium therapy is identified and characterized. The enzyme is involved in regulating levels of phosphoadenylate phosphate in sulfur assimilation. Also disclosed herein are transgenic animals that serve as models of lithium-induced toxicity and methods of using the transgenic animals for identifying compds. that ameliorate lithium toxicity. Furthermore, disclosed herein are methods of modeling target sites for lithium. Methionine auxotrophic yeast carrying deletions of the MET13 or MET14 genes and unable to synthesize 3'-phosphoadenosine 5'-phosphate are resistant to lithium toxicity. The bifunctional human enzyme ATP sulfurylase/APS kinase could complement these mutations and restored lithium sensitivity. The sensitivity could be blocked by the presence of chlorate.

L12 ANSWER 11 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
2004:90127 Document No. 141:82119 Bisphosphate 3'-nucleotidase: a novel target to lithium therapy. Spiegelberg, Bryan David (Duke Univ., Durham, NC, USA). 222 pp. Avail: UMI, Order No. DA3082821 From: Diss. Abstr. Int., B 2003, 64(3), 1234 (English) 2002.
AB Unavailable

L12 ANSWER 12 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
2003:760481 Document No. 139:394348 3'(2')-Phosphoadenosine 5'-phosphate phosphatase is reduced in postmortem frontal cortex of bipolar patients. Shaltiel, G.; Kozlovsky, N.; Belmaker, R. H.; Agam, G. (Stanley Research Center and Zlotowski Center for Neuroscience, Faculty of Health Sciences, Ben-Gurion University of the Negev, Beersheva, Israel). Bipolar Disorders, 4(5), 302-306 (English) 2002. CODEN: BDIIAU. ISSN: 1398-5647. Publisher: Blackwell Publishing Ltd..
AB Objective: 3'(2')-Phosphoadenosine 5'-phosphate (PAP) phosphatase is a novel lithium (Li) inhibitable enzyme. Thus the enzyme seemed an important candidate for studies of the mol. etiol. of bipolar disorder. Methods: RT-PCR, Western-blot anal. and Pi liberation were used to measure PAP phosphatase mRNA levels, protein levels and enzyme activity (resp.) in postmortem frontal cortex specimens of bipolar patients vs. normal subjects. Results: The PAP phosphatase protein levels were 24% significantly lower in bipolar patients than in normal subjects. PAP phosphatase mRNA levels and enzymic activity did not differ between normal controls and bipolar patients. Conclusions: Abnormality of PAP phosphatase in bipolar patients offers a new direction for study of bipolar disorder etiol.

L12 ANSWER 13 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
2003:626048 Document No. 140:3253 Possible role of 3'(2')-phosphoadenosine-5'-phosphate phosphatase in the etiology and therapy of bipolar disorder. Agam, Galila; Shaltiel, Galit (Faculty of Health Sciences, Stanley Research Center and Zlotowski Center for Neuroscience, Ben-Gurion University of the Negev, Beersheva, Israel). Progress in Neuro-Psychopharmacology & Biological Psychiatry, 27(5), 723-727 (English) 2003. CODEN: PNPPD7. ISSN: 0278-5846. Publisher: Elsevier Science B.V..
AB A review. Bipolar affective disorder (BPD) is a multifactorial, severe, chronic and disabling illness with 50% heritability that affects 1-2% of the population. Lithium ions (Li) are the drug of choice for BPD. Yet, 20-40% of patients fail to respond to Li. Although numerous biochem. and cellular effects have been attributed to Li, its therapeutic mechanism of action has not been elucidated. This review presents the possible involvement of 3'(2')-phosphoadenosine-5'-phosphate (PAP) phosphatase in the etiol. of bipolar disorder and the mechanism of action of Li. Of the enzymes inhibited by Li, PAP phosphatase is inhibited with the lowest Ki (0.3 mM). At therapeutic concns. of Li (0.5-1.5 mM), inhibition is greater than 80%. Therefore, PAP phosphatase is a strong candidate for Li's therapeutic mechanism of action. In yeast, a PAP phosphatase knockout mutation leads to the accumulation of PAP, which affects ribosomal-, transfer-

and small nucleolar-RNA processing. PAP accumulation in the mammalian brain following Li inhibition of PAP phosphatase may very well account for the observed effects of Li on gene expression and behavior. Furthermore, the authors have reported significant changes in PAP phosphatase levels in postmortem frontal cortex of bipolar patients.

L12 ANSWER 14 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
2002:746393 Document No. 137:227629 Protein and cDNA sequences of human lithium sensitive bisphosphate 3'-nucleotidase 11.99 and therapeutical uses. Mao, Yumin; Xie, Yi (Shanghai Bode Gene Development Co., Ltd., Peop. Rep. China). Faming Zhuanli Shenqing Gongkai Shuomingshu CN 1329162 A 20020102, 35 pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 2000-116599 20000619.

AB The invention provides the protein and cDNA sequences of a novel human lithium sensitive bisphosphate 3'-nucleotidase 11.99 with the mol. weight of 12 kilodaltons cloned from human fetal brain. The invention relates to construction of lithium sensitive bisphosphate 3'-nucleotidase 11.99 expression vector for preparation of recombinant protein using prokaryotes or eukaryotes. The invention relates to preparation of antibody against this protein. The invention further relates to the PCR primers, nucleic acid probes, DNA fragments and protein agonists or antagonists specific for this gene or gene product for the diagnosis as well as treatment of various metabolic diseases, such as hormone metabolic disorders, metabolic acidosis, etc.

L12 ANSWER 15 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
2002:537626 Document No. 137:165889 Halotolerance genes in yeast. Serrano, Ramon (Instituto de Biologia Molecular y Celular de Plantas, Universidad Politecnica de Valencia-C.S.I.C., Valencia, 46022, Spain). Salinity, 491-504. Editor(s): Laeuchli, Andre; Luettge, Ulrich. Kluwer Academic Publishers: Dordrecht, Neth. ISBN: 1-4020-0492-3 (English) 2002. CODEN: 69CWNO.

AB A review. Yeast mol. genetics has unraveled some novel aspects which may be relevant to plant tolerance to salt stress. The plasma membrane elec. potential drives the uptake of toxic cations such as sodium. This biophys. parameter is modulated by several protein kinases acting on the proton pumping ATPase and on the potassium transporter. Salt stress signaling occurs by two mechanisms involving turgor loss (Hog1 pathway) and calcium (calcineurin pathway). Hog1 phosphorylates and inactivates the Skl1 transcriptional repressor. Calcineurin dephosphorylates and activates the Crz1/Hal8 transcriptional activator. Sodium inhibits a 3',5'-bisphosphate nucleotidase (Hal2) involved in sulfate metabolism and RNA processing.

L12 ANSWER 16 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
2002:525205 Document No. 138:12347 Structural enzymology of Li+-sensitive/Mg2+-dependent phosphatases. Patel, S.; Martinez-Ripoll, M.; Blundell, Tom L.; Albert, A. (Department of Biochemistry, University of Cambridge, Cambridge, CB2 1GA, UK). Journal of Molecular Biology, 320(5), 1087-1094 (English) 2002. CODEN: JMOBAK. ISSN: 0022-2836. Publisher: Elsevier Science Ltd..

AB Li+-sensitive/Mg2+-dependent phosphatases have attracted considerable attention since they have been proposed as targets for Li therapy in the treatment of manic-depressive patients. The members of this enzyme superfamily display low levels of sequence identity while possessing a common fold and active site. Extensive structural and biochem. data demonstrate the direct involvement of 2 metal cations in catalysis, and show that Li+ exerts its inhibitory action by blocking the products at the active site. By exploiting the different inhibitory properties of Mg2+ and Ca2+, the authors were able to solve the x-ray structures of the Li+-sensitive/Mg2+-dependent 3'-phosphoadenosine 5'-phosphatase in complex with its substrate and with its products. The structural comparison of these complexes provides a 3-dimensional picture of the different stages of the

catalytic cycle. This gives new insights into the understanding of the biol. function of this group of enzymes and their inhibition by Li+, and should assist in the design of improved inhibitors of therapeutic value.

L12 ANSWER 17 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
2001:831767 Document No. 137:88421 Genetic polymorphisms in genes associated with drug metabolism and their use in selecting drug therapies. Stanton, Vincent; Zillmann, Martin (USA). U.S. Pat. Appl. Publ. US 2001034023 A1 20011025, 210 pp., Cont.-in-part of U.S. Ser. No. 710,467. (English). CODEN: USXXCO. APPLICATION: US 2000-XA733000 20001207. PRIORITY: US 1999-PV131334 19990426; US 1999-PV139440 19990615; WO 2000-US1392 20000120; US 2000-2000/696482 20001024; US 2000-2000/710467 20001108; US 2000-2000/733000 20001207.

AB Methods for identifying and utilizing variances in genes relating to efficacy and safety of medical therapy and other aspects of medical therapy are described, including methods for selecting an effective treatment. [This abstract record is one of several records for this document necessitated by the large number of index entries required to fully index the document and publication system constraints.].

L12 ANSWER 18 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
2000:446266 Document No. 133:147336 Tol1, a fission yeast phosphomonoesterase, is an in vivo target of lithium, and its deletion leads to sulfite auxotrophy. Miyamoto, Rumi; Sugiura, Reiko; Kamitani, Shinya; Yada, Tomoko; Lu, Yabin; Sio, Susie O.; Asakura, Masahiro; Matsuhisa, Akio; Shuntoh, Hisato; Kuno, Takayoshi (Department of Pharmacology, Kobe University School of Medicine, Kobe, 650-0017, Japan). Journal of Bacteriology, 182(13), 3619-3625 (English) 2000. CODEN: JOBAAY. ISSN: 0021-9193. Publisher: American Society for Microbiology.

AB Lithium is the drug of choice for the treatment of bipolar affective disorder. The identification of an in vivo target of lithium in fission yeast as a model organism may help in the understanding of lithium therapy. For this purpose, we have isolated genes whose overexpression improved cell growth under high LiCl concns. Overexpression of tol1+, one of the isolated genes, increased the tolerance of wild-type yeast cells for LiCl but not for NaCl. Tol1+ encodes a member of the lithium-sensitive phosphomonoesterase protein family, and it exerts dual enzymic activities, 3'(2'),5'- bisphosphate nucleotidase and inositol polyphosphate 1-phosphatase. Tol1+ gene-disrupted cells required high concns. of sulfite in the medium for growth. Consistently, sulfite repressed the sulfate assimilation pathway in fission yeast. However, tol1+ gene-disrupted cells could not fully recover from their growth defect and abnormal morphol. even when the medium was supplemented with sulfite, suggesting the possible implication of inositol polyphosphate 1-phosphatase activity for cell growth and morphol. Given the remarkable functional conservation of the lithium-sensitive dual-specificity phosphomonoesterase between fission yeast and higher-eukaryotic cells during evolution, it may represent a likely in vivo target of lithium action across many species.

L12 ANSWER 19 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
2000:103617 Document No. 133:130515 Arabidopsis AHL gene encodes a 3'(2'),5'-bisphosphate nucleotidase sensitive to toxic heavy metal ions. Cheong, Jong-Joo; Kwon, Hawk-Bin (Plant Cell Biotechnology Laboratory, Korea Research Institute of Bioscience and Biotechnology, Taejon, 305-600, S. Korea). Agricultural Chemistry and Biotechnology (English Edition), 42(4), 169-174 (English) 1999. CODEN: ACBTFF. ISSN: 1229-2737. Publisher: Korean Society of Agricultural Chemistry and Biotechnology.

AB Arabidopsis AHL gene contains 4 exons encoding a putative protein highly homologous to the yeast salt-sensitive enzyme HAL2, a 3'(2'),5'- bisphosphate nucleotidase involving in reductive sulfate assimilation. AHL cDNA complemented

yeast met22 (hal2) mutant. AHL fusion protein expressed in E. coli exhibited Mg2+-dependent, 3'-phosphoadenosine 5'-phosphate (PAP)-specific phosphatase activity. Li+, Na+, K+ and Ca2+ ions inhibit the enzyme activity by competing with Mg2+ for the active site of the enzyme. The enzyme activity was also sensitive to μM concns. of toxic heavy metal ions such as Cd2+, Cu2+ and Zn2+, but was not recovered by addition of more Mg2+ ions, suggesting that these ions inactivate the enzyme with a mechanism other than competition with Mg2+ ions. Inhibition of the AHL enzyme activity may result in accumulation of PAP, which is highly toxic to the cell. Thus, the AHL enzyme could be one of the initial targets of heavy metal toxicity in plants.

L12 ANSWER 20 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
2000:95868 Document No. 132:274183 A novel target of lithium therapy. Yenush, L.; Belles, J. M.; Lopez-Coronado, J. M.; Gil-Mascarell, R.; Serrano, R.; Rodriguez, P. L. (Instituto de Biologia Molecular y Celular de Plantas, Universidad Politecnica de Valencia-Consejo Superior de Investigaciones Cientificas, Valencia, E-46022, Spain). FEBS Letters, 467(2,3), 321-325 (English) 2000. CODEN: FEBLAL. ISSN: 0014-5793. Publisher: Elsevier Science B.V..

AB Phosphatases converting 3'-phosphoadenosine 5'-phosphate (PAP) into adenosine 5'-phosphate are of fundamental importance in living cells as the accumulation of PAP is toxic to several cellular systems. These enzymes are lithium-sensitive and we have characterized a human PAP phosphatase as a potential target of lithium therapy. A cDNA encoding a human enzyme was identified by data base screening, expressed in Escherichia coli and the 33 kDa protein purified to homogeneity. The enzyme exhibits high affinity for PAP (Km<1 μM) and is sensitive to subtherapeutic concns. of lithium (IC50=0.3 mM). The human enzyme also hydrolyzes inositol-1,4-bisphosphate with high affinity (Km=0.4 μM), therefore it can be considered as a dual specificity enzyme with high affinity (μM range) for both PAP and inositol-1,4-bisphosphate. Hydrolysis of inositol-1,4-bisphosphate was also inhibited by lithium (IC50=0.6 mM). Thus, we present exptl. evidence for a novel target of lithium therapy, which could explain some of the side effects of this therapy.

L12 ANSWER 21 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
2000:82995 Document No. 132:262059 X-ray Structure of Yeast Hal2p, a Major Target of Lithium and Sodium Toxicity, and Identification of Framework Interactions Determining Cation Sensitivity. Albert, A.; Yenush, L.; Gil-Mascarell, M. R.; Rodriguez, P. L.; Patel, S.; Martinez-Ripoll, M.; Blundell, T. L.; Serrano, R. (Grupo de Cristalografia Macromolecular y Biologia Estructural, Instituto de Quimica Fisica "Rocasolano", Consejo Superior de Investigaciones Cientificas, Madrid, E-28006, Spain). Journal of Molecular Biology, 295(4), 927-938 (English) 2000. CODEN: JMOBAK. ISSN: 0022-2836. Publisher: Academic Press.

AB The product of the yeast HAL2 gene (Hal2p) is an in vivo target of sodium and lithium toxicity and its overexpression improves salt tolerance in yeast and plants. Hal2p is a metabolic phosphatase which catalyzes the hydrolysis of 3'-phosphoadenosine-5'- phosphate (PAP) to AMP. It is, the prototype of an evolutionarily conserved family of PAP phosphatases and the engineering of sodium insensitive enzymes of this group may contribute to the generation of salt-tolerant crops. We have solved the crystal structure of Hal2p in complex with magnesium, lithium and the two products of PAP hydrolysis, AMP and Pi, at 1.6 Å resolution A functional screening of random mutations of the HAL2 gene in growing yeast generated forms of the enzyme with reduced cation sensitivity. Anal. of these mutants defined a salt bridge (Glu238 ... Arg152) and a hydrophobic bond (Val70 ... Trp293) as important framework interactions determining cation sensitivity. Hal2p belongs to a larger superfamily of lithium-sensitive phosphatases which includes inositol monophosphatase. The hydrophobic interaction mutated in Hal2p is conserved in this superfamily and its

disruption in human inositol monophosphatase also resulted in reduced cation sensitivity. (c) 2000 Academic Press.

L12 ANSWER 22 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
1999:367394 Document No. 131:196165 A novel mammalian lithium -sensitive enzyme with a dual enzymatic activity, 3'-phosphoadenosine 5'-phosphate phosphatase and inositol-polyphosphate 1-phosphatase. Lopez-Coronado, Jose M.; Belles, Jose M.; Lesage, Florian; Serrano, Ramon; Rodriguez, Pedro L. (Instituto de Biologia Molecular y Celular de Plantas, Universidad Politecnica de Valencia-Consejo Superior de Investigaciones Cientificas, Valencia, E-46022, Spain). Journal of Biological Chemistry, 274(23), 16034-16039 (English) 1999. CODEN: JBCHA3. ISSN: 0021-9258. Publisher: American Society for Biochemistry and Molecular Biology.

AB We report the mol. cloning in Rattus norvegicus of a novel mammalian enzyme (RnPIP), which shows both 3'-phosphoadenosine 5'-phosphate (PAP) phosphatase and inositol-polyphosphate 1-phosphatase activities. This enzyme is the first PAP phosphatase characterized at the mol. level in mammals, and it represents the first member of a novel family of dual specificity enzymes. The phosphatase activity is strictly dependent on Mg2+, and it is inhibited by Ca2+ and Li+ ions. Lithium chloride inhibits the hydrolysis of both PAP and inositol-1,4-bisphosphate at submillimolar concentration; therefore, it is possible that the inhibition of the human homolog of RnPIP by lithium ions is related to the pharmacol. action of lithium. We propose that the PAP phosphatase activity of RnPIP is crucial for the function of enzymes sensitive to inhibition by PAP, such as sulfotransferase and RNA processing enzymes. Finally, an unexpected connection between PAP and inositol-1,4-bisphosphate metabolism emerges from this work.

L12 ANSWER 23 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN
1999:317703 Document No. 131:127062 Cloning and characterization of a mammalian lithium-sensitive bisphosphate 3'-nucleotidase inhibited by inositol 1,4-bisphosphate. Spiegelberg, Bryan D.; Xiong, Jian-Ping; Smith, Jesse J.; Gu, Rong Fong; York, John D. (Departments of Pharmacology & Cancer Biology and Biochemistry, Duke University Medical Center, Durham, NC, 27710, USA). Journal of Biological Chemistry, 274(19), 13619-13628 (English) 1999. CODEN: JBCHA3. ISSN: 0021-9258. Publisher: American Society for Biochemistry and Molecular Biology.

AB Discovery of a structurally conserved metal-dependent lithium -inhibited phosphomonoesterase protein family has identified several potential cellular targets of lithium as used to treat manic depression. Here the authors describe identification of a novel family member using a "computer cloning" strategy. Human and murine cDNA clones encoded proteins sharing 92% identity and were highly expressed in kidney. Native and recombinant protein harbored intrinsic magnesium-dependent bisphosphate nucleotidase activity (BPntase), which removed the 3'-phosphate from 3'-5' bisphosphate nucleosides and 3'-phosphoadenosine 5'-phosphosulfate with Km and Vmax values of 0.5 μM and 40 μmol/min/mg. Lithium uncompetitively inhibited activity with a Ki of 157 μM. Interestingly, BPntase was competitively inhibited by inositol 1,4-bisphosphate with a Ki of 15 μM. Expression of mammalian BPntase complemented defects in hal2/met22 mutant yeast. These data suggest that BPntase's physiol. role in nucleotide metabolism may be regulated by inositol signaling pathways. The presence of high levels of BPntase in the kidney are provocative in light of the roles of bisphosphorylated nucleotides in regulating salt tolerance, sulfur assimilation, detoxification, and lithium toxicity. The authors propose that inhibition of human BPntase may account for lithium -induced nephrotoxicity, which may be overcome by supplementation of current therapeutic regimes with inhibitors of nucleotide biosynthesis, such as methionine.

L12 ANSWER 24 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN

1999:225325 Document No. 131:99082 The Arabidopsis HAL2-like gene family includes a novel sodium-sensitive phosphatase. Gil-Mascarell, Rosario; Lopez-Coronado, Jose M.; Belles, Jose M.; Serrano, Ramon; Rodriguez, Pedro L. (Instituto de Biologia Molecular y Celular de Plantas, Universidad Politecnica de Valencia-Consejo Superior de Investigaciones Cientificas, Valencia, E-46022, Spain). Plant Journal, 17(4), 373-383 (English) 1999. CODEN: PLJUED. ISSN: 0960-7412. Publisher: Blackwell Science Ltd..

AB The yeast HAL2 gene encodes a lithium- and sodium -sensitive phosphatase that hydrolyzes 3'-phosphoadenosine-5'-phosphate (PAP). Salt toxicity in yeast results from Hal2 inhibition and accumulation of PAP, which inhibits sulfate assimilation and RNA processing. The authors have investigated whether the model plant Arabidopsis thaliana contains sodium-sensitive PAP phosphatases. The Arabidopsis HAL2-like gene family is composed of three members: AtAHL and AtSAL2, characterized in the present work, and the previously identified AtSAL1. The AtAHL and AtSAL2 cDNAs complement the auxotrophy for methionine of the yeast hal2 mutant and the recombinant proteins catalyze the conversion of PAP to AMP in a Mg2+-dependent reaction sensitive to inhibition by Ca2+ and Li+. The PAP phosphatase activity of AtAHL is sensitive to physiol. concns. of Na+, whereas the activities of AtSAL1 and AtSAL2 are not. Another important difference is that AtAHL is very specific for PAP while AtSAL1 and AtSAL2 also act as inositol polyphosphate 1-phosphatases. AtAHL constitutes a novel type of sodium-sensitive PAP phosphatase which could act coordinately with plant sulfotransferases and serve as target of salt toxicity in plants.

L12 ANSWER 25 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN

1998:24441 Document No. 128:162778 Lithium toxicity in yeast is due to the inhibition of RNA processing enzymes. Dichtl, Bernhard; Stevens, Audrey; Tollervey, David (EMBL, Gene Expression Programme, Heidelberg, 69012, Germany). EMBO Journal, 16(23), 7184-7195 (English) 1997. CODEN: EMJODG. ISSN: 0261-4189. Publisher: Oxford University Press.

AB Hal2p is an enzyme that converts pAp (adenosine 3',5' bisphosphate), a product of sulfate assimilation, into 5' AMP and Pi. Overexpression of Hal2p confers lithium resistance in yeast, and its activity is inhibited by submillimolar amts. of Li+ in vitro. Here we report that pAp accumulation in HAL2 mutants inhibits the 5'→3' exoribonucleases Xrn1p and Rat1p. Li+ treatment of a wild-type yeast strain also inhibits the exonucleases, as a result of pAp accumulation due to inhibition of Hal2p; 5' processing of the 5.8S rRNA and snoRNAs, degradation of pre-rRNA spacer fragments and mRNA turnover are inhibited. Lithium also inhibits the activity of RNase MRP by a mechanism which is not mediated by pAp. A mutation in the RNase MRP RNA confers Li+ hypersensitivity and is synthetically lethal with mutations in either HAL2 or XRN1. We propose that Li+ toxicity in yeast is due to synthetic lethality evoked between Xrn1p and RNase MRP. Similar mechanisms may contribute to the effects of Li+ on development and in human neurobiol.

L12 ANSWER 26 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN

1997:336768 Document No. 127:15210 Crucial reactions for salt tolerance in yeast. Serrano, Ramon; Ali, Rashid; Culianez-Macia, Francisco A.; Espinosa, Ana; Ferrando, Alejandro; Garcia, Maria J.; Gaxiola, Roberto; Glaser, Heinz-U.; Marquez, Jose A.; et al. (Instituto de Biologia Molecular y Celular de Plantas, Universidad Politecnica de Valencia-C.S.I.C., Valencia, E-46022, Spain). Physical Stresses in Plants: Genes and Their Products for Tolerance, Proceedings of the Workshop on Genes and Their Products for Tolerance to Physical Stresses in Plants, Maratea, Italy, Sept. 24-27, 1995, Meeting Date 1995, 95-100. Editor(s): Grillo, Stefania; Leone, Antonella. Springer: Berlin, Germany. (English) 1996. CODEN: 64JRAU.

AB A review with 14 refs. Random over-expression of genes in multicopy plasmids and gene disruptions have uncovered rate-limiting steps for salt tolerance in the

model organism Saccharomyces cerevisiae (baker's yeast). In cells growing in glucose media intracellular sodium toxicity is the major component of salt stress. In minimal synthetic media sodium toxicity primarily affects methionine biosynthesis. This is due to sodium inhibition of the 3',5'-bisphosphate nucleotidase encoded by the HAL2/MET22 gene. The sodium -extrusion ATPase encoded by the ENA1/PMR2 gene is the major determinant of sodium homeostasis, together with its complex regulatory system, which includes the calcineurin and HAL3 (HAL1) pathways. A basic understanding of rate-limiting reactions in this model organism is necessary for successful genetic engineering of salt-tolerant plants.

L12 ANSWER 27 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN

1996:716555 Document No. 126:15656 The yeast HAL2 nucleotidase is an in vivo target of salt toxicity. Murguia, Jose Ramon; Belles, Jose Maria; Serrano, Ramon (Inst. Biol. Mol. Cel. Plantas, Univ. Politec. Valencia, Valencia, Spain). Journal of Biological Chemistry, 271(46), 29029-29033 (English) 1996. CODEN: JBCHA3. ISSN: 0021-9258. Publisher: American Society for Biochemistry and Molecular Biology.

AB The yeast halotolerance gene HAL2 encodes a nucleotidase that dephosphorylates 3'-phosphoadenosine 5'-phosphate (PAP) and 3'-phosphoadenosine 5'-phosphosulfate (PAPS) intermediates of the sulfate assimilation pathway. This nucleotidase is inhibited by Na+ and Li+ but not by K+. Incubation of wild-type yeast cells with NaCl and LiCl, but not with KCl, increased intracellular PAP to millimolar concns. No depletion of the pool of adenine nucleotides (AMP, ADP, ATP) was observed Other stresses such as heat shock or oxidative stress did not result in PAP accumulation. PAPS concns. also increased during salt stress but remained lower than 0.5 μM. S-Adenosylmethionine concns. decreased by 50%, reflecting inhibition of sulfate assimilation during salt stress. Salt-induced PAP accumulation was attenuated in a yeast strain overexpressing HAL2. This strain grew better than the wild type under salt stress. These results suggest that the cation sensitivity of the HAL2 nucleotidase is an important determinant of the inhibition of yeast growth by sodium and lithium salts. In addition to blocking sulfate assimilation by product inhibition of PAPS reductase, PAP accumulation may have other unidentified toxic effects.

L12 ANSWER 28 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN

1996:206574 Document No. 124:255834 The SAL1 gene of Arabidopsis, encoding an enzyme with 3'(2'),5'-bisphosphate nucleotidase and inositol polyphosphate 1-phosphatase activities, increases salt tolerance in yeast. Quintero, Francisco J.; Garciadeblas, Blanca; Rodriguez-Navarro, Alonso (Dep. Biotecnologia, Univ. Politecnica de Madrid, Madrid, 28040, Spain). Plant Cell, 8(3), 529-37 (English) 1996. CODEN: PLCEEW. ISSN: 1040-4651. Publisher: American Society of Plant Physiologists.

AB A cDNA library in a yeast expression vector was prepared from roots of Arabidopsis exposed to salt and was used to select Li+-tolerant yeast transformants. The cDNA SAL1 isolated from one of these transformants encodes a polypeptide of 353 amino acid residues. This protein is homologous to the HAL2 and CysQ phosphatases of yeast and Escherichia coli, resp. Partial cDNA sequences in the data bases indicate that rice produces a phosphatase highly homologous to SAL1 and that a second gene homologous to SAL1 exists in Arabidopsis. The SAl1 protein expressed in e. coli showed 3'(2'),5'-bisphosphate nucleotidase and inositol polyphosphate 1-phosphatase activities. In yeast, SAL1 restored the ability of a hal2/met22 mutant to grow on sulfate as a sole sulfur source, increased the intracellular LI+ tolerance, and modified Na+ and Li+ effluxes. We propose that the product of Sl1 participates in the sulfur assimilation pathway as well as in the phosphoinositide signaling pathway and that changes in the latter may affect Na+ and Li+ fluxes.

L12 ANSWER 29 OF 29 CAPLUS COPYRIGHT 2006 ACS on STN

1995:323429 Document No. 122:154982 A salt-sensitive 3'(2'),5'-bisphosphate nucleotidase involved in sulfate activation. Murguia, Jose Ramon; Belles, Jose Maria; Serrano, Ramon (Inst. Biol. Mol. Cel. Plantas, Cons. Super. Invest. Cient., Valencia, 46022, Spain). Science (Washington, D. C.), 267(5195), 232-4 (English) 1995. CODEN: SCIEAS. ISSN: 0036-8075. Publisher: American Association for the Advancement of Science.

AB Overexpression of a yeast gene, HAL2, allows the cells to tolerate higher than normal extracellular salt concns. Gene HAL2 encodes a 3'(2')5'- bisphosphate nucleotidase (EC 3.1.3.7) that serves to remove the end-products of sulfate transfer during cellular metabolism The enzyme was inhibited by Li+ and Na+ and was activated by K+. Metabolic systems that are sensitive to salt, as well as those governing osmolyte synthesis and ion transport, offer routes by which genetic engineering can be used to improve the tolerance of various organisms to salt.

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=> S (CALIBRATION OR STANDARD)(3W)CURVE
        104525 CALIBRATION
          5457 CALIBRATIONS
        107360 CALIBRATION
                  (CALIBRATION OR CALIBRATIONS)
        130859 STANDARD
         61149 STANDARDS
        183479 STANDARD
                  (STANDARD OR STANDARDS)
        446786 STD
         80245 STDS
        500099 STD
                  (STD OR STDS)
        627760 STANDARD
                  (STANDARD OR STD)
        258415 CURVE
        307488 CURVES
        518933 CURVE
                  (CURVE OR CURVES)
L13      39934 (CALIBRATION OR STANDARD)(3W)CURVE

=> S L13 AND (L10,L1)
             0 L1
L14       2183 L13 AND ((L10 OR L1))

=> S L13 AND (L10,L11)
L15       2388 L13 AND ((L10 OR L11))

=> D 350-600 TI
=> D 364,409,449,584 CBIB ABS
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L15 ANSWER 364 OF 2388 CAPLUS COPYRIGHT 2006 ACS on STN

2003:338574 Document No. 139:159366 Development and validation of a sensitive liquid chromatographic-tandem mass spectrometric method for the determination of Cromolyn sodium in human plasma. Lin, Zhongping John; Abbas, Richat; Rusch, Lorraine M.; Shum, Linyee (Avantix Laboratories, Inc., New Castle, DE, 19720, USA). Journal of Chromatography, B: Analytical Technologies in the Biomedical and Life Sciences, 788(1), 159-166 (English) 2003. CODEN: JCBAAI. ISSN: 1570-0232. Publisher: Elsevier Science B.V..

AB Cromolyn sodium is a safe compound with potent anti-allergic properties when used locally or topically. Clin. data from systemic exposure is not available because of the poor GI absorption when given orally. In order to evaluate a new approach to enhance the absorption and bioavailability of Cromolyn sodium, a sensitive assay was needed to support an oral-dose study in humans. This paper describes a liquid chromatog.-tandem mass spectrometric (LC-MS-MS) method for the anal. of

Cromolyn sodium in human plasma. The method consists of a 2-step extraction with subsequent anal. using an HPLC electrospray tandem mass spectrometer system. The compds. were eluted isocratically on a C18 column followed by a back flush. The total run time is 6 min. The standard curve of Cromolyn sodium was over the range 0.313-750 ng/mL with a lower limit of quantitation (LLOQ) of 0.313 ng/mL when 0.5 mL of plasma was used for anal. The percent coefficient of variation (C.V.) for accuracy and precision (inter-assay and intra-assay) was <15% over the validated concentration range and the coeffs. of determination, r2, were >0.991577. The method is simple, sensitive, and selective, and has been successfully utilized for oral Cromolyn sodium clin. studies.

L15 ANSWER 409 OF 2388 CAPLUS COPYRIGHT 2006 ACS on STN

2002:831068 Document No. 138:8439 Determination of ceftriaxone sodium by HPLC. Liu, Hao; Qiu, Shilin (Shanghai Institute for Drug Control, Shanghai, 200233, Peop. Rep. China). Zhongguo Kangshengsu Zazhi, 27(5), 273-276, 286 (Chinese) 2002. CODEN: ZKZAEY. ISSN: 1001-8689. Publisher: Zhongguo Kangshengsu Zazhishe.

AB The HPLC method for the determination of ceftriaxone was presented. The chromatog. conditions were as follows: ODS column, mobile phase of H2O-MeCN (73:27, containing 0.02M octylamine, adjusted with phosphoric acid to A pH of 6.5), and detection wavelength at 254 nm. The standard curve for ceftriaxone was linear within the range of 80.9-404.5 μg mL-1. The RSD for repetition was 0.11% AND the RSD within a day was 0.26%. The assay results agreed with those of the British Pharmacopeia 2000 method.

L15 ANSWER 449 OF 2388 CAPLUS COPYRIGHT 2006 ACS on STN

2002:438531 Document No. 138:117192 HPTLC determination of diclofenac sodium from serum. Lala, L. G.; D'Mello, P. M.; Naik, S. R. (Department of Pharmacognosy and Phytochemistry, Prin. K.M. Kundnani College Of Pharmacy, Mumbai, 400018, India). Journal of Pharmaceutical and Biomedical Analysis, 29(3), 539-544 (English) 2002. CODEN: JPBADA. ISSN: 0731-7085. Publisher: Elsevier Science B.V..

AB Diclofenac sodium is one of the potent Non Steroidal Anti-Inflammatory Drugs (NSAID) used in the treatment of inflammatory conditions. The present work deals with the estimation of diclofenac sodium from serum by a novel High Performance Thin Layer Chromatog. (HPTLC) method developed in our laboratory Standard diclofenac sodium was spotted on Silica Gel 60 F254 precoated plates, which were developed using the mobile phase toluene:acetone:glacial acetic acid (80:30:1,volume/volume/v). Densitometric anal. of diclofenac sodium was carried out at 280 nm with diclofenac being detected at an Rf of 0.58. The method was subsequently developed to estimate diclofenac sodium from serum. Diclofenac sodium was extracted with Et acetate from serum samples, spotted on Silica Gel 60 F254 plates and the plates were developed using the above mentioned mobile phase. The method was validated for selectivity, extraction efficiency, sensitivity, accuracy, and intra and inter-day reproducibility studies. The extraction efficiency was found to range from 76 to 80%. The Limit of Detection (LOD) and Limit of Quantification (LOQ) of diclofenac sodium in serum were 90 and 120 ng, resp. The calibration curve of diclofenac sodium in serum was linear in the range of 200-800 ng. The mean values (±S.D.) of correlation coefficient, slope and intercept were 0.9876 (±0.0105), 0.0228 (±0.0036) and 6.15 (±1.4), resp. The mean percentage coefficient of variation for accuracy, intra-day and inter-day anal. at 200-800 ng of diclofenac sodium were 3.2, 6.35 and 8.025, resp. The proposed method is a simple and sensitive method with good precision and reproducibility for the estimation of diclofenac sodium form serum samples.

L15 ANSWER 584 OF 2388 CAPLUS COPYRIGHT 2006 ACS on STN

2000:852950 Document No. 134:219295 Criterion for Hill equation validity for description of biosensor calibration curves. Kurganov, B. I.; Lobanov, A. V.; Borisov, I. A.; Reshetilov, A. N. (Russian Academy of Sciences, A.N. Bach Institute of Biochemistry, Moscow,

117071, Russia). Analytica Chimica Acta, 427(1), 11-19 (English) 2001. CODEN: ACACAM. ISSN: 0003-2670. Publisher: Elsevier Science B.V..

AB The applicability of well-known three-parameter Hill equation for description of calibration curves for potentiometric (detection of glucose, pesticides, urea) and amperometric (detection of surfactants, biphenyl, nitrite) biosensors has been analyzed. The criterion for validity of the Hill equation has been proposed. The sources of errors at the determination of concentration of the substance being analyzed have been considered.

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=> S (L10 OR L11)(3A)ION
      1128538 ION
       706697 IONS
      1498707 ION
                (ION OR IONS)
L16     53475 (L10 OR L11)(3A)ION

=> S L16 AND L13
L17         89 L16 AND L13

=> D 1-89 TI
=> D 2,15,19,39,56-57,61,65,69,79-81 CBIB ABS
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L17 ANSWER 2 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

2005:1073135 Document No. 143:366153 Method for rapidly determining sodium ion content in fruit juices and beverages by flame photometry. Li, Yuanrui; Zhu, Jiang; Li, Fanyue; Liu, Feng (Peop. Rep. China). Faming Zhuanli Shenqing Gongkai Shuomingshu CN 1560607 A 20050105, 11 pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 2010-25910 20040303.

AB In this invention, the sodium ion contents in transparent liquid with low viscosity such as fruit juices, beverages and washing water in production line are quickly determined by flame photometry. The title method comprises (1) preparing standard sodium-containing storage solution, (2) preparing standard sodium-containing working solution, (3) preparing series of standard sodium-containing solns., (4) treating samples, (5) starting and igniting the device, (6) determining standard curve, (7) adding sample and reading result, (8) shutting down instrument, and (9) calculating sodium ion contents. This method has advantages of quick and simple process, low cost, and high reliability.

L17 ANSWER 15 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

2001:331099 Document No. 135:86162 A novel ion chromatographic method based on cation-exchange and acid-base interactions for the simultaneous determination of total alkalinity and monovalent cations in samples of μl volume. Hu, Wenzhi; Haddad, Paul R.; Hasebe, Kiyoshi; Tanaka, Kazuhiko (Department of Chemistry, Graduate School of Science, Hokkaido University, Sapporo, 060-0810, Japan). Analyst (Cambridge, United Kingdom), 126(5), 555-558 (English) 2001. CODEN: ANALAO. ISSN: 0003-2654. Publisher: Royal Society of Chemistry.

AB An ion chromatog. (IC) method based on the use of titrant (strong acid) as the stationary phase was developed for simultaneous determination of total alkalinity (TA) and monovalent cations. The titrant used in this study was obtained by initially loading lithium dodecylsulfate (Li-DS) onto a reversed-phase material and then conditioning the column with a slightly acidified aqueous LiCl solution (a mixture of 50.0 mM LiCl and 0.1 mM H2SO4). When a small amount of a basic sample was injected onto a column prepared in this way, the basic species (Bn-) reacted predominantly with H+ on the stationary phase and the reaction with the eluent phase was negligible due to the very low concentration of eluent H+ (in the eluent, a molar ratio of [Li+]/[H+] = 250 : 1 applied). The stationary phase H+ consumed in the acid-base reaction was then re-supplied by H+ from the eluent. By monitoring the conductance of the eluent using conductivity, an induced peak resulting from the basic species was observed Calibration graphs of peak areas

vs. molar concentration of the basic species for OH-, HCO3- and H2PO4- are identical. CO32-, HPO42-, and B4O72- also gave identical calibration curves but their slope values were twice those for HCO3-. The detection limit for HCO3- was <3.2 μM and the calibration curve was linear up to 12.3 mM (injection volume, 100 μL). Seawater was directly analyzed and its total alkalinity is 2.87 mM (relative standard deviation 0.53%, n = 5), which was in good agreement with the result of 2.88 mM (relative standard deviation 3.2%, n = 5) obtained using auto-potentiometric titration Na+ and K+ were determined simultaneously and the concns. were 481.6 and 10.6 mM, resp.

L17 ANSWER 19 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

1999:807501 Document No. 132:148636 Visual and Colorimetric Lithium Ion Sensing Based on Digital Color Analysis. Hirayama, Etsuko; Sugiyama, Tsunemi; Hisamoto, Hideaki; Suzuki, Koji (Department of Applied Chemistry, Keio University, Yokohama, 223-8522, Japan). Analytical Chemistry, 72(3), 465-474 (English) 2000. CODEN: ANCHAM. ISSN: 0003-2700. Publisher: American Chemical Society.

AB A new optical anal. method, "Digital Color Anal. (DCA)", is proposed based on a digital color analyzer instead of the conventional optical methodol., "Spectrophotometry". The digital color analyzer is a hand-held-size instrument for measuring "colors", and it can transform the color information into numerical values, color library data, etc., that can be treated as anal. information. DCA gives us a more informative anal. method than spectrophotometry by treating colors as digital information. In addition, DCA can also simulate the optimum color variations for optimization of the visual sensor with computer assistance. By utilizing colors as digital information, colorimetric anal. that has been used for only semiquant. anal. can serve as an accurate determination method. On the basis of DCA, we developed a plasticized PVC film optode and a paper optode for Li+ determination in saliva. After the optimization of color variation and the detection range for the Li+ measurements, the optode membrane gives colorless gray in the Li+ therapeutic range (at 10-3 M) in saliva. Consequently, whether or not the optimum therapeutic Li+ concentration is maintained can be easily evaluated with these optodes. Especially, the sensing paper optode can be easily handled within a short measurement time (.apprx.80 s) which is suitable for home use. Using the digital color analyzer with QxQy coordinates, a linear relation calibration curve can be obtained over the range from 10-5 to 10-1 M Li+, in which the analyzer can detect a concentration difference of .apprx.0.1 mM Li+. For the near future, an accurate and simple anal. is needed for a health check at home that does not require going to a hospital. The optode based on DCA has great potential for this anal. purpose.

L17 ANSWER 39 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

1995:229276 Document No. 122:182777 Single ring crown ether and β-galactosidase for sodium ion determination. Umemoto, Atsushi; Tadano, Toshio (Kyowa Medex Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 06217797 A2 19940809 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1993-11924 19930127.

AB Disclosed is a method for Na+ determination by measuring the reaction of β-galactosidase and its substrate in the presence of a single ring crown ether. In example, 18-crown-6 or N-[2-(methoxyethoxy)ether]monoazo- 15-crown-5 were used to prepare standard curves for Na+ determination

L17 ANSWER 56 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN

1987:27106 Document No. 106:27106 Device for measuring ionic activity. Seshimoto, Osamu (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 61102550 A2 19860521 Showa, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1984-224659 19841025.

AB The title device consists of ≥1 pairs of rectangular ion-selective electrodes on a supporting board (substrate). For each pair, there is a hole on one electrode

for placing a sample solution, and a hole on the other electrode for placing a reference (standard) solution A porous bridge (e.g., of poly(ethylene terephthalate cellulose)) connects the 2 solns. The 2 electrodes are positioned between 2 partition boards on the substrate, and an adhesive (e.g., paraffin) is placed between the electrodes and the partition boards. A potential is generated by the difference in ionic activity between the sample solution and the reference solution The ionic activity of the sample solution is determined by measuring the potential and using a calibration curve. The ionic activity of solns. containing 3 different ions, e.g., Na+, K+, and Cl-, can be determined simultaneously. The title device is easy to fabricate and enables highly accurate determination of ionic activity in H2O, wine, beverages, blood, urine, saliva, etc.

L17 ANSWER 57 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN
1986:453604 Document No. 105:53604 Ion-sensitive FET with a sodium aluminosilicate layer for determining the sodium-ion concentration in aqueous solutions. Klein, Manfred (Forschungsinst. Ulm, AEG A.-G., Ulm, Fed. Rep. Ger.). NTG-Fachberichte, 93(Sens. -- Technol. Anwend.), 66-72 (German) 1986. CODEN: NTGFDK. ISSN: 0341-0196.
AB An ion-sensitive FET with a Na aluminosilicate glass layer is described for determining, Na+in aqueous solns. The response time of the FET was 1 s. The calibration curve was linear in the range 0-5 pNa. The sensitivity was -59 mV/pNa.

L17 ANSWER 61 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN
1984:566616 Document No. 101:166616 Potentiometric method for determining the potassium and sodium ion concentration in plasma and serum using ion-selective electrodes. Dobrolyubova, B. A. (USSR). Gigiena i Sanitariya (8), 68-9 (Russian) 1984. CODEN: GISAAA. ISSN: 0016-9900.
AB The potentiometric method for the determination of Na and K in serum or plasma uses ion-sensitive electrodes, a Calomel reference electrode, and a saturated solution of NH4NO3 as the electrolyte. A calibration curve is prepared for standard solns. (10-1 to 10-6M). Quant. measurement of these ions in rat and human plasma by this method showed no differences with results using flame photometry. Heparin, used as a blood stabilizer, had no effect on the ion-selective electrodes. The method may be used in the biochem. and toxicol. laboratory

L17 ANSWER 65 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN
1983:78240 Document No. 98:78240 Determination of sodium and chloride ions in amino acid infusions by ion-selective electrode. Xiu, Zhaohua; Zhong, Zhaoming (Shanghai Changzheng Pharm. Co., Shanghai, Peop. Rep. China). Yaoxue Tongbao, 17(12), 722-4 (Chinese) 1982. CODEN: YHTPAD. ISSN: 0512-7343.
AB Na+ and Cl- in amino acid infusions were determined by Na-selective or Cl-selective electrodes. Calibration curves were linear to 300 mV Na+ or Cl-. Of 10 infusions tested, Na+ concns. were in the range 259-888 μg/mL and Cl- concns. 212-6713 μg/mL. Ratios of Na+/Cl- were 1:05 to 1:87. The method was rapid and simple.

L17 ANSWER 69 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN
1978:542755 Document No. 89:142755 Determination of the chloride, fluoride, potassium and sodium ion concentration of biological fluids by ion-sensitive microcapillary electrodes. Havas, J.; Kecskes, L.; Nyiro, K.; Patko, M.; Szoke, I. (Radelkis Electrochem. Instrum. Co., Budapest, Hung.). HSI, Hungarian Scientific Instruments, 43, 7-14 (English) 1978. CODEN: HUSIAR. ISSN: 0367-6420.

AB Tech. details and schemes of the microcapillary Cl, F, K, and Na sensitive electrodes of Radelkis type are presented for detns. in biol. fluids. Procedures of calibration are described in detail, and calibration curves are shown. Suggested techniques for detns. are also described in detail, and data obtained from the anal. of samples of whole blood are tabulated.

L17 ANSWER 79 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN
1974:84873 Document No. 80:84873 Determination of sodium and potassium content in cellulose acetate and sodium ion-containing water by the flame photometry. Maizels, D.; Tul'guk, Z. D.; Gusev, V. K. (Engels, USSR). Khimicheskie Volokna, 15(5), 70-1 (Russian) 1973. CODEN: KVLKA4. ISSN: 0023-1118.

AB Samples of liqs. containing Na [7440-23-5] and K [7440-09-7] ions are sprayed into the flame of a photoelec. spectrometer and the ion concns. are determined with the help of calibration curves. The preparation of samples involves the combustion of cellulose acetate [9004-35-7] to ash, the dissoln. of the ash in HCl and the dilution to standard volume The samples of plant water are diluted with distilled H2O and analyzed directly. The relative determination errors are 2.5-3.2% for Na and 1-1.2% for K.

L17 ANSWER 80 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN
1973:7247 Document No. 78:7247 Determination of sodium in ceramics by using a sodium-ion responsive glass electrode. Noshiro, Makoto; Jitsugiri, Yukio (Res. Lab., Asahi Glass Co., Ltd., Tokyo, Japan). Yogyo Kyokaishi, 80(11), 438-41 (Japanese) 1972. CODEN: YGKSA4. ISSN: 0009-0255.

AB Transfer about 0.05.apprx.0.5 g ground ceramic samples into a Pt dish. Add 0.5 ml water as a wetting agent. Then add 2 ml HClO4 and 10 ml HF, and heat the dish on a sand bath. Cool the dish add 5 ml HCl and H2O, and warm it on a steam bath to dissolve salts. Transfer to a 100 ml volumetric flask and made it up to 100 ml with H2O. To ensure that the ionic strength and pH of the solution remained constant, 20 ml of sample solution were mixed with 20 ml of the buffer solution The electrodes were placed into the solution and the Na ion activity was determined The concentration of Na ion was determined from the calibration curve obtained previously and the percentage of Na2O in ceramics was calculated The results of the developed method for various ceramics were compared with the results of flame-photometric method and these two results were in good agreement. The standard deviation of determination was .apprx.0.04% for the content of Na2O 13.7%.

L17 ANSWER 81 OF 89 CAPLUS COPYRIGHT 2006 ACS on STN
1971:119560 Document No. 74:119560 Flame-photometric determination of sodium and phosphate ions in chromium phosphate. Bulycheva, I. B.; Aleshechkina, A. E. (USSR). Trudy Ural'skogo Nauchno-Issledovatel'skogo Khimicheskogo Instituta, No. 19, 180-4 (Russian) 1970. CODEN: TUNKA4. ISSN: 0562-7850.

AB The detns. were made with the flame photometer FPF-58 by using an air-acetylene flame. Na, <12 mg/l., was determined in the presence of Cr3+ and PO43+ in a solution of N HCl. The determination of PO43+ was based on the decrease of the intensity of the band of Ca at 620.3-622.0 nm in the presence of the PO43+ ions. The calibration curve was made in the range of 25-55 mg PO43+/100 ml 0.5N HCl containing 60 mg Ca2+, and 25 mg Cr3+. The mean sq. error of the determination of 0.02-0.2% Na was 0.004% and of 33-48% PO43+ was 0.56%.

=> E YUAN C/AU
=> S E3,E20
146 "YUAN C"/AU
15 "YUAN C S"/AU
L18 161 ("YUAN C"/AU OR "YUAN C S"/AU)

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=> E YUAN CHONG/AU
=> S E3,E5-E6
             10 "YUAN CHONG"/AU
              1 "YUAN CHONG SHEN"/AU
             49 "YUAN CHONG SHENG"/AU
L19          60 ("YUAN CHONG"/AU OR "YUAN CHONG SHEN"/AU OR "YUAN CHONG SHENG"/A
                U)

=> S L18,L19
L20         221 (L18 OR L19)

=> S L20 AND L9
L21           2 L20 AND L9

=> S L20 AND (L10,L11)
L22          12 L20 AND ((L10 OR L11))

=> S L21,L22
L23          12 (L21 OR L22)

=> D 1-12 TI
=> D 1,3,6 CBIB ABS

L23  ANSWER 1 OF 12  CAPLUS  COPYRIGHT 2006 ACS on STN
2005:1055777  Automated enzymatic assay for measurement of lithium
     ions in human serum.  Dou, Chao; Aleshin, Olga; Datta, Abhijit; Yuan,
     Chong (Diazyme Laboratories Division, General Atomics, San Diego, CA,
     92121, USA).  Clinical Chemistry (Washington, DC, United States), 51(10),
     1989-1991 (English) 2005.  CODEN: CLCHAU.  ISSN: 0009-9147.  Publisher:
     American Association for Clinical Chemistry.
AB   An enzymic coupling assay for quant. measurement of lithium in nonhemolyzed human
     sera has been developed and adapted to most automated clin. chemical analyzers.
     In this assay, lithium is determined through a kinetic coupling system involving
     a lithium-sensitive enzyme, 3',5'-bisphosphate nucleotidase, from yeast.  The
     assay is formulated into a lyophilized 2-reagent system with MES buffer (pH 6.0).
     Applications have been developed for testing human serum specimens on the Cobas
     Mira, Synchron CX-7, and Hitachi 717.  The within-run CV was <4.7%, and the total
     CV was <6.9%.  The study testing human sera with lithium concns. of 0-3 mmol/L
     demonstrated good correlation with both a com. available ion-selective electrode
     method and a colorimetric method on various automated analyzers.  The assay was
     linear up to 3.0 mmol/L.


L23  ANSWER 3 OF 12  CAPLUS  COPYRIGHT 2006 ACS on STN
2005:283276  Document No. 142:353392  Determination of serum levels of
     sodium and lithium ions using ion-sensitive 3'(2'),5'-
     bisphosphate nucleotidase chimeric protein.  Yuan,
     Chong-Sheng (General Atomics, USA).  PCT Int. Appl. WO 2005027725 A2
     20050331, 46 pp.  DESIGNATED STATES: W:  AE, AG, AL, AM, AT, AU, AZ, BA,
     BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC,
     EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG,
     KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
     NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,
     TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT,
     BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE,
     IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR.  (English).  CODEN:
     PIXXD2.  APPLICATION: WO 2004-US30522 20040917.  PRIORITY: US
     2003-2003/665883 20030919.
AB   Serum electrolytes play a critical role in regulating normal physiol. functioning
     within and between cells.  The testing of serum electrolytes is one of the most
     common anal. tests performed within hospitals.  The invention relates generally
     to the field of sodium and lithium ion detection.  In particular, the invention
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provides chimeric proteins comprising 3'(2'),5'-bisphosphate nucleotidase fused with bacterial leader sequence for detecting sodium and lithium ions in a blood sample. The method comprises: (a) contacting the sample with a sodium-sensitive or lithium ions 3'(2'),5'-bisphosphate nucleotidase , wherein the nucleotidase consumes adenosine 3',5'-bisphosphate (PAP) and forms AMP and Pi; and (b) assessing the consumption of PAP or the formation of AMP and Pi to determine the presence or amount of sodium ions or lithium ions in the sample.

L23 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2006 ACS on STN
2001:31675 Document No. 134:83111 Methods and compositions for assaying analytes. Yuan, Chong-Sheng (General Atomics, USA). PCT Int. Appl. WO 2001002600 A2 20010111, 187 pp. DESIGNATED STATES: W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 2000-US18057 20000630. PRIORITY: US 1999-347878 19990706; US 1999-457205 19991206.

AB Compns. and methods for assaying analytes, preferably, small mol. analytes are provided. Assay methods employ, in place of antibodies or mols. that bind to target analytes or substrates, modified enzymes, called substrate trapping enzymes. These modified enzymes retain binding affinity or have enhanced binding affinity for a target substrate or analyte, but have attenuated catalytic activity with respect to that substrate or analyte. The modified enzymes are provided. In particular, mutant S-adenosylhomocysteine (SAH) hydrolases, substantially retaining binding affinity or having enhanced binding affinity for homocysteine or S-adenosylhomocysteine but having attenuated catalytic activity, are provided. Conjugates of the modified enzymes and a facilitating agent, such as agents that aid in purification or linkage to a solid support are also provided.

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=> S ENZYME
        761291 ENZYME
        440189 ENZYMES
L24     962422 ENZYME
                (ENZYME OR ENZYMES)

=> S L24 AND L13 AND (L10,L11)
L25         61 L24 AND L13 AND ((L10 OR L11))

=> D 1-61 TI
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	L #	Hits	Search Text	DBs
1	L1	18705	SODIUM ADJ ION	US-PGPUB; USPAT
2	L2	14157	LITHIUM ADJ ION	US-PGPUB; USPAT
3	L3	25	BISPHOSPHATE ADJ NUCLEOTIDASE	US-PGPUB; USPAT
4	L4	0	L3 AND (L1,L2)	US-PGPUB; USPAT
5	L5	657258	SODIUM OR LITHIUM	US-PGPUB; USPAT
6	L6	18	L3 AND L5	US-PGPUB; USPAT
7	L7	160748	ENZYME?	US-PGPUB; USPAT
8	L8	109	(L1 OR L2) SAME L7	US-PGPUB; USPAT
9	L9	60	(L1 OR L2) WITH L7	US-PGPUB; USPAT
10	L10	28	BISPHOSPHATE ADJ4 NUCLEOTIDASE	US-PGPUB; USPAT
11	L11	0	L10 AMD (L1 OR L2)	US-PGPUB; USPAT
12	L12	2	L10 AND (L1 OR L2)	US-PGPUB; USPAT